

What is claimed is:

1. A method of forming a multi-layer printed circuit board (PCB), said multi-layer PCB including one or more cores, a plurality of circuit layers formed by using a resin build-up process or a lamination process to increase the number thereof, and a dielectric layer formed between two said circuit layers that are adjacent to each other, said method being characterized in that said circuit layers located at inner and outer layers of said multi-layer PCB are formed with said resin build-up process and said lamination process, respectively; wherein a resin layer using a resin material as a dielectric is formed with said resin build-up process, and a second or a third layer of said inner circuit layers that requires refinement of circuits thereon is formed on said resin layer to increase the refinement of said second or said third layer of said inner circuit layers, and said dielectric layer on which said outer circuit layer is formed uses a laminating dielectric and is formed with said lamination process to enhance a thermal resistance, a copper peel strength, a stiffness, and a thermal stress reliability of said outer circuit layer; whereby a finished product of said multi-layer PCB

has a structure that combines advantages obtainable from said resin build-up process and said lamination process.

- 5 2. The method of forming a multi-layer PCB as claimed
in claim 1, wherein said dielectric resin material
for forming said resin layer is epoxy.
3. The method of forming a multi-layer PCB as claimed
10 in claim 1, wherein said resin layer is formed with
said resin build-up process through liquid epoxy
coating.
4. The method of forming a multi-layer PCB as claimed
15 in claim 1, wherein said resin layer is formed with
said resin build-up process through dry film type
epoxy laminating.
5. The method of forming a multi-layer PCB as claimed
20 in claim 1, wherein said laminating dielectric is
a prepreg material, that is, a resin-impregnated
fiberglass fabric.
6. The method of forming a multi-layer PCB as claimed
25 in claim 1, wherein said laminating dielectric is
an aramid fiber material.

7. A multi-layer printed circuit board (PCB),
comprising at least one core, multiple circuit
layers sequentially provided at each outer side of
5 said core to include at least an outer circuit layer
forming a first layer of said PCB and two inner
circuit layers forming a second and a third inner
circuit layer of said PCB, and multiple dielectric
layers, each of which is provided between two said
10 circuit layers that are adjacent to each other; said
multi-layer PCB being characterized in that at least
one resin layer is formed between said second and
said third inner circuit layers of said PCB to serve
as said dielectric layer, that said second inner
15 circuit layer is formed on said resin layer to enable
refinement of circuits thereon, that an outmost one
of said dielectric layers located between said outer
circuit layer and said second inner circuit layer
is formed of a resin material containing a
20 reinforcing fiber material, and that said outer
circuit layer is formed on said dielectric layer of
said resin material containing a reinforcing fiber
material by way of lamination to possess enhanced
peel strength.

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8. The multi-layer PCB as claimed in claim 7, wherein

said resin layer is formed of epoxy.

9. The multi-layer PCB as claimed in claim 7, wherein
said resin layer formed between said second and said
5 third layer of said PCB is formed with a resin
build-up process through liquid epoxy coating.

10. The multi-layer PCB as claimed in claim 7, wherein
said resin layer formed between said second and said
10 third layer of said PCB is formed with a resin
build-up process through dry film type epoxy
laminating.

11. The multi-layer PCB as claimed in claim 7, wherein
15 said resin material containing a reinforcing fiber
material is a prepreg material, that is, a
resin-impregnated fiberglass fabric.

12. The multi-layer PCB as claimed in claim 7, wherein
20 said resin material containing a reinforcing fiber
material is an aramid fiber material.